

What is claimed is:

1. A $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ compound, which incorporates a negative hydrogen ion (H^- , H^{2-} , H_2^-) at a concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or more.
- 5 2. A $12\text{SrO} \cdot 7\text{Al}_2\text{O}_3$ compound, which incorporates a negative hydrogen ion (H^- , H^{2-} , H_2^-) at a concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or more.
- 10 3. A mixed crystal compound of $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ and $12\text{SrO} \cdot 7\text{Al}_2\text{O}_3$, which incorporates a negative hydrogen ion (H^- , H^{2-} , H_2^-) at a concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or more.
4. The compound as defined in either one of claims 1 to 3, which has an electronic conductance equivalent to an electric conductivity of 10^{-5} Scm^{-1} or more.
- 15 5. The compound as defined in either one of claims 1 to 3, which exhibits a sustained increase in electronic conductivity by means of irradiation with ultraviolet ray or X-ray.
6. The compound as defined in either one of claims 1 to 3, which has an ionic conductance derived from the negative hydrogen ion (H^- , H^{2-} , H_2^-).
- 20 7. A method of producing the compound as defined in either one of claims 1 to 3, comprising subjecting either one selected from the group consisting of a $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ compound, a $12\text{SrO} \cdot 7\text{Al}_2\text{O}_3$ compound, and a mixed crystal compound of $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ and $12\text{SrO} \cdot 7\text{Al}_2\text{O}_3$ to a heat treatment at a temperature of 800°C or more in an atmosphere containing 1000 ppm or more of hydrogen, to thereby clathrate a negative hydrogen ion (H^- , H^{2-} , H_2^-) into said selected compound at a concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or more.
- 25 8. A transparent electrode or wiring, which is formed using the compound as defined in claim 4 or 5.

9. An optically writable and erasable 3-dimensional electronic circuit and 3-dimensional storage element, which is formed using the compound as defined in claim 5.
- 5 10. A negative hydrogen ion (H^- , H^{2-} , H_2^-)-conducting solid-electrolyte, which is formed using the compound as defined in claim 6.
11. A method of generating a negative hydrogen ion or hydrogen gas, comprising applying a given voltage to the compound as defined in either one of claims 1 to 3, to thereby extract a
- 10 negative hydrogen ion from said compound.